

Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A device for mapping the distribution of an XRF marker (16) in a body volume (14), comprising an X-ray source (10) for the emission of a beam of rays (12), said beam comprising a first ray component (I_1) with a quantum energy above the K-edge of the XRF marker and a second ray component (I_2) ~~(12)~~ with a quantum energy below the K-edge of the marker, the quantum energy of the first ray component and the quantum energy of the second ray component deviating from the K-edge of the XRF marker by less than 10%; a detector (30) for the detection of secondary radiation from the body volume (14), said detector being located outside the beam of rays (12) of the X-ray source (10); means (22) for adjusting the intensity ratio between the first and second ray components in the beam of rays (12).

2. (Currently Amended) A device as claimed in claim 1, ~~characterized in that~~wherein the means for adjusting the intensity ratio include a filter (22) removably located in the beam of rays (12).

3. (Currently Amended) A device as claimed in claim 2, ~~characterized in that~~wherein the filter (22) contains the material of the XRF marker or is made there from.

4. (Currently Amended) A device as claimed in claim 1, ~~characterized in that~~wherein the first ray component (I_1) and/or the second ray component (I_2) are/is monochromatic or quasi-monochromatic, ~~the quantum energy of the ray component deviating by less than~~

~~10%, preferably by less than 3%, from the K-edge of the XRF marker.~~

5. (Currently Amended) A device as claimed in claim 1, ~~characterized in that~~wherein the first ray component is represented by the $K_{\alpha 1}$ -line and the second ray component is represented by the $K_{\alpha 2}$ -line of an element.

6. (Currently Amended) A device as claimed in claim 1, ~~characterized in that~~wherein the detector (30) is capable of the location-resolved and/or energy-resolved measurement of the secondary radiation.

7. (Currently Amended) A device as claimed in claim 1, ~~characterized in that it~~wherein the device comprises a further detector (20) located in the beam of rays (12) and capable of the location-resolved measurement of transmission radiation through the body volume (14).

8. (Currently Amended) A device as claimed in claim 1, ~~characterized in that it~~wherein the device components are coupled to one another and together capable of pivoting about an axis of rotation.

9. (Currently Amended) A method for determining the distribution of an XRF marker (16) in a body volume (14), comprising the following steps: a) Irradiation of the body volume (14) with a beam of rays (12) with a first ray component (I_1) with a quantum energy above the K-edge and a second ray component (I_2) with a quantum energy below the K-edge of the XRF marker; b) Measurement of the resulting first secondary radiation from the body volume (14); c) Irradiation of the body volume (14) with the beam of rays with a different intensity ratio between the first and second ray components; d) Measurement of the resulting second secondary radiation from the body volume (14); e) ~~Determination of these~~Determination of the components of the secondary radiation which are due to the fluorescence of the XRF marker by comparing the first and second secondary radiations.

10. (Currently Amended) A method as claimed in claim 9, ~~characterized in that~~wherein the secondary radiation is measured at a point where only backscatter is detected, and in that at least one of the spectra of the secondary radiations is determined by approximation by means of a function.